

**Al/AlO<sub>x</sub>/Al RESISTOR PROCESS FOR INTEGRATED CIRCUITS****ABSTRACT OF THE DISCLOSURE**

A structure and a method for forming a vertical resistor on a superconducting integrated circuit. The resistance structure is formed from a Al/AlO<sub>x</sub>/Al material system. In particular, the resistance structure includes a layer of aluminum, in-situ oxidation of the aluminum surface and further deposition of aluminum. The resistance of the Al/AlO<sub>x</sub>/Al structure primarily comes from the aluminum oxide layer rather than the aluminum. As such, any aluminum removed during the interconnect pre-cleaning process will have a negligible impact on the overall resistance of the structure.